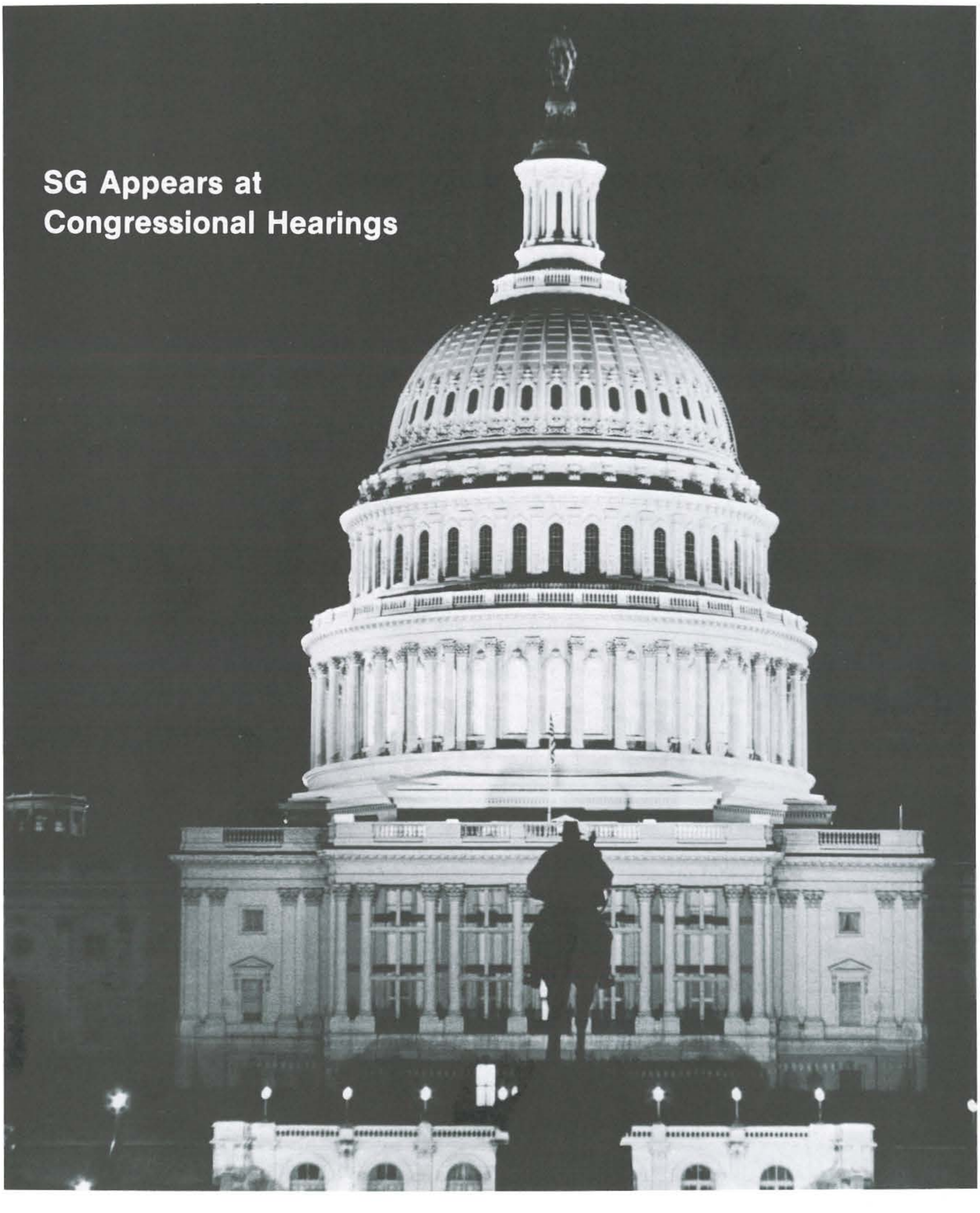
U.S. NAVY MEDICINE

July 1982



SG Appears at Congressional Hearings

U.S. NAVY MEDICINE

Vol. 73, No. 7
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COVER: Once in March and twice in May the Surgeon General of the Navy appeared before two congressional subcommittees to report on the state of the Navy Medical Department. The text of two of those reports starts on page 1. Photo by the Editor.

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Surgeon General Appears Before Congressional Committees

On 24 March 1982 VADM J. William Cox, MC, USN, Surgeon General of the Navy, appeared before the Subcommittee on Military Personnel and Compensation of the House Armed Services Committee, where he discussed Navy medicine and the delivery of military health care.

On 5 May and 26 May, VADM Cox again returned to Capitol Hill, appearing both times before the Subcommittee on Manpower and Personnel of the Senate Armed Services Committee.

U.S. Navy Medicine *here prints the comment made by VADM Cox prior to his statement given to the House Subcommittee on 24 March, and both statements given before the Senate Subcommittee in May concerning medical readiness, and military health care systems and quality assurance.*

24 March 1982—Comment Prior to House Subcommittee Statement

Mr. Chairman, it is indeed a pleasure to appear before this Subcommittee and, respectful of your request, I think my statement for the record is sufficient. I would only ask permission for a personal assertion.

I have now had over 33 years in the medical profession, both in teaching fundamental science and in the clinical realm. I have had intimate relationships with organized medicine across the specialty fields and have held numerous positions within a medical department of the United States military. I have seen quality, compassion in caring, and competence reach the point where our military medical system, with all its problems and needed improvements, is second to none in the world.

5 May 1982—Statement Before Subcommittee on Manpower and Personnel of the Senate Armed Services Committee: Medical Readiness

I am very pleased to be here to discuss the status of medical readiness to support Navy and Marine Corps contingency operations and our plans in this area for the future.

The primary mission of the Navy Medical Department is to be prepared to provide medical support to the Navy and Marine Corps in time of war. Fulfillment of this mission requires maintenance of a balanced force of active duty medical personnel trained in general medical skills and specific knowledge required for combat support, maintenance of medical skills to rapidly respond to operational requirements, maintenance of a viable Reserve program to allow rapid expansion of the medical support element in the event of mobilization, and a support environment in which these personnel can provide care.

In peacetime the Medical Department maintains the readiness posture of the active duty forces, trains our medical personnel for their combat mission, and performs operational planning in concert with other naval commands and components. It also provides support to other authorized beneficiaries within the constraints of manpower and funding. Although support of peacetime and wartime missions are often viewed as separate programs, they are, in fact, inseparable, since common resources support both missions.

The Navy-Marine Corps team, in order to provide effective in-theater medical support during a contingency, must establish a continuum of care from the forward edge of the combat zone to the continental United States, essentially establishing a medical organization where none may have existed previously. The concepts for providing support may be best understood by reviewing the sequence of events that must take place.

The highly mobile company corpsmen and battalion aid stations go ashore on landing day with the assault force and provide very limited first-aid and resuscitative care to casualties. Once the assault force is established ashore, about landing day plus five, the more capable Marine Corps medical companies and hospital companies are phased ashore. In the interim casualties can also be sent to casualty receiving and treatment ships offshore.

The five medical companies with two operating rooms and 60 beds, which are organic to a Marine Amphibious Force, represent the next echelon of care for patients coming from forward battalion aid stations. Medical capability is limited to life-saving surgery and resuscitative care. Available holding capacity permits only very brief holding of patients prior to evacuation rearward.

The hospital company with its six operating rooms and 200 beds also begins landing about day five and provides additional medical capability to accommodate combat "surges" which may exceed medical company capabilities. Patients from the hospital company flow to casualty receiving and treatment ships and to hospital ships and fleet hospitals.

The amphibious task force ships provide emergency resuscitative, stabilization, and surgical care that is beyond the physical capacity of Marine Corps units. The primary mission of ships in the task force, including those designated as casualty receiving ships, is to transport the assault echelon to the amphibious objective area. The casualty receiving ships presently provide the only surgical capability in-theater during the initial force insertion and buildup phase of the landing. After treatment, patients are transferred rearward to the next echelon of care—to more sophisticated facilities that can initiate or provide definitive care so patients can be returned to duty or be prepared for movement out-of-theater. This is the gap in our current capability.

We have in the current budget funds for a hospital ship and fleet hospitals. Hospital ships and fleet hospitals are planned to have equivalent acute medical care capabilities to provide in-theater, more sophisticated medical care. Hospital ships, which are more mobile than fleet hospitals, are ready to receive and care for casualties upon their arrival; however, they do require hospitals to which they can transfer treated patients when they are filled to capacity.

Fleet hospitals are shore-based, modular, transportable hospitals with definitive care capabilities equivalent to hospital ships. They are in 250- and 500-bed sizes and are expected to provide medical support in the communications zone, in countries nearest the communications zone or, under suitable conditions, in the rear of the combat zone itself.

Similarly, existing overseas medical treatment facilities represent "prepositioned," forward deployed hospitals for support of operating forces along existing lines of communication.

Stateside naval medical centers, clinics, and other support activities are the mobilization base which during wartime receives and cares for casualties evacuated from overseas, provides base medical support for other Navy and DOD activities, and continues to act as a mobilization base for trained medical manpower replacements for forward deployed units.

Clearly, in-theater medical support is much more than just doctrinal organization; it requires medical facilities, people, and logistics support, and must be sized to the task at hand. I would now like to discuss how we determine these requirements.

The determination of medical facilities and personnel requirements to provide the necessary wartime support starts with the Defense Guidance, which provides the strategy to meet the threat, the use of forces in combat and, in the area of medical support, specific guidance which directs a set theater evacuation policy, commonality of supply items, prepositioning of medical support, and direction for expansion of stateside capabilities to provide care in wartime.

Using the forces at risk and the expected intensity of combat, a computer-based Medical Contingency Planning Module accepted for use by all three services and now undergoing trial use by unified commands, computes hospital admissions and in-theater manpower and manning requirements. These are developed independently for each scenario and include the disease and nonbattle injury factors. The theater evacuation policy determines where definitive care medical capability is required, and this drives the need for hospital ship and fleet hospital capability. The advantage of longer evacuation policy in-theater is the ability to return sick and injured personnel to duty closer to the combat zone, significantly reducing manpower replacement requirements.

Staffing of individual in-theater facilities is based upon variables such as facility size, level of medical sophistication, and anticipated intensity of use. The supplies and equipment for the programmed facilities will be prepositioned in containers, and to the maximum extent possible, will be standard among the three services.

The medical manpower to augment the fleet and Marine Corps units, to expand our stateside and overseas facilities, and to staff our deployable facilities is met by use of active duty personnel, the Reserves, and the retired personnel who would be recalled. The initial augmentation requirements and manning of early deploying facilities must be met by active duty and selected Reserve personnel. Later deploying units and augmentation of stateside facilities will utilize the Reserves and retired personnel.

The first manpower priority is the in-theater requirement and the stateside base will be reduced to fill these needs. This will force us to operate our facilities at less than the maximum capability, and the Veterans Administration system and civilian facilities will have to absorb the excess patients. As the Reserves and retired personnel are called to duty, our capability will increase but not sufficiently to operate stateside facilities at maximum bed capability. Programmed increases in active duty and Reserves will lessen this shortfall.

While adequate numbers of personnel will be available to meet in-theater needs, problems do exist in the specialty mix of physicians. Currently, general surgeons, anesthesiologists, and orthopedic surgeons, our primary contingency physicians, are in short supply. The Navy Active Duty Deferment Program, which places the Health Professions Scholarship Program graduates into civilian residencies, will improve our future accessions into these specialties. The Incentive Pay and Board Certification Pays in the 1980 Special Pay Act, along with improved ancillary support and equipment, provide incentives for retention of these specialists.

One way to enhance our Reserve Medical Corps recruitment would be to allow scholarship graduates, at the discretion of the Secretary of Defense, to fulfill their service commitment through an extended Reserve service obligation or a combination of active and Reserve service. This would require a legislative change; such a program would have my support.

While the shortfall of surgical specialties is large, the requirement is reduced in wartime by use of other specialties. Urologists, obstetricians, family practitioners, and several other specialties receive surgical training in their residencies and will assist in fulfilling the wartime requirement.

Also, we are providing all physicians training in wartime medical skills in a tri-service Combat Casualty Care Course in San Antonio, TX. In addition to preparing our surgical specialties for in-theater support, it prepares our nonsurgical specialists to provide minor surgery, resuscitation, and other life-saving procedures under combat conditions. Two hundred physicians were trained in FY81, and an additional 400 will be trained this fiscal year.

Navy hospital corpsmen have no comparable civilian counterpart. This requirement, until new accessions can be obtained and trained, must be met by active duty and Reserves. Since these personnel and other support personnel can significantly increase the productivity of physicians in hospitals during peacetime, we are programming an increase in the size of our active force during this budget year and in future years.

In summary, I am very enthusiastic about our programs. While our current medical support contingency posture has serious shortfalls, we have a well-developed program encompassing personnel, training, a hospital ship, rapidly deployable medical facilities, and fleet hospitals which will meet our needs in the years ahead. Your support of these programs in FY83 and in the future is crucial to medical readiness.

26 May 1982—Statement Before Subcommittee on Manpower and Personnel of the Senate Armed Services Committee: Navy Health Care and Quality Assurance and Risk Management

The Navy Medical Department has the primary mission to be prepared to provide medical support to the Navy and Marine Corps forces at sea, in the air, and in the field in time of war. In order to maintain and restore functional health, return trained personnel to duty, and minimize disability, the Medical Department must be mobile, flexible, and must have the capability of rapid response.

In peacetime it safeguards and promotes the health of the naval and Marine personnel to assure combat readiness, trains our medical personnel for their combat mission, and concurrently provides a cost-effective health care benefit to the families of active duty and retired personnel.

In the event of a national emergency or mobilization, the Medical Department team must be ready with a fully prepared base of highly trained, experienced personnel, both active and Reserve, to provide medical support anywhere in the world.

As Surgeon General of the Navy, I am responsible to the Chief of Naval Operations for the total medical system within Navy. In order to carry out this responsibility, Medical Department flag officers serve on the staffs of the Commander in Chief, U.S. Atlantic Fleet; the Commander in Chief, U.S. Pacific Fleet; the Commandant of the Marine Corps; and as major deputies in the Bureau of Medicine and Surgery. Medical personnel also function in many other Navy organizational elements such as training, personnel, research, supply, and systems analysis. This insures that Navy policies are reflected across the wide spectrum of Navy medical facilities and provides the necessary feedback to monitor the program.

In addition, I serve as the Chief of the Bureau of Medicine and Surgery. As such I have under me a capable group of flag officers who function as Assistant Chiefs for Professional Development, for Planning and Resources, for Health Care Programs, and for Dentistry; they provide the broad management for the Medical Department. I also have special assistants in such areas as Inspector General, Medical Readiness, and Internal Review who provide the control checks to insure compliance with directives and policy. In the Bureau we manage the day-to-day operations of the Medical Department, plan for functional improvements and wartime readiness, and provide review and oversight of our medical system.

In the fixed medical activity system, the Medical Department is organized into major medical and dental regions across the country and overseas, commanded by senior medical and dental personnel who report directly to me, and on whom I rely for management of all patient care, preventive medicine, and other mission responsibilities in this region. Under each of the regional commanding officers are smaller hospitals and regional clinics which support large Navy and Marine Corps bases, and a system of branch clinics which support smaller units.

This regional system insures that my policies and standards are enforced down to the smallest medical unit, and that medical resources are apportioned in a manner which takes into account the best possible quality care and equity in providing health care services to our entire Navy family.

Since all three services provide medical support to beneficiaries of each other, and to insure that the most effective care is provided throughout the world, the Navy system complements and interacts with the Tri-Service Regionalization System. At the headquarters level, I and my senior staff interface with the Assistant Secretary for Health Affairs, Army and Air Force in the Defense Health Council, the Medical Mobilization Steering Committee, and the Tri-Service Surgeons General Council.

At the field activity level each of my regional commanding officers and their subordinate commanding officers are members of the Tri-Service Coordinating Committee in each DOD region. Today, thousands of beneficiaries of each service receive patient care in other service facilities, a form of resource-sharing which amounts to hundreds of millions of dollars. Close cooperation and coordination between military treatment facilities is an absolute necessity. This facility interaction promotes coordination of patient care in each area of the country, enhances efficiencies by exposing initiatives that would be unneces-

VADM Cox

sarily duplicative, and provides a forum for regional cooperative initiatives in resource-sharing.

Since Public Health Service and Veterans Affairs representatives attend these meetings, this also provides a forum for exchange between all Federal medical facilities and a ready review of sharing possibilities. A recent case in point is the closure of the Public Health Service facilities. In areas where Navy activities were colocated with PHS clinics and hospitals, the coordination of the transfer of patient care took place through the local coordinating committees.

In order to carry out the medical/dental mission, a wide ranging mix of personnel, equipment, and facilities is required. These include Marine Corps organic medical support with its field trained personnel, equipment, and highly mobile patient resuscitative and holding hospital capability; shipboard facilities ranging from the one corpsman sickbay aboard small ships to the 70 bed facility on the *Nimitz* class carriers; a mix of rapidly deployable hospital ships and fleet hospitals for contingency response; numerous overseas clinics and hospitals to support the fleet units; and a large CONUS-based definitive and restorative care medical system to provide the peacetime patient care, expansion capability for wartime, and a trained supply of medical personnel ready for immediate deployment.

In order to maintain this system we must have a training system to provide the manpower, a research capability to insure that the best techniques and methods are available, a viable Reserve program with adequate numbers of trained personnel to provide for augmentation requirements, and a management organization to insure that the system is ready to meet its contingency mission in wartime and to provide cost-effective, quality medical care in peacetime.

Today's hearing is specifically aimed at management of the health care system and quality assurance. I have already discussed the overall management structure of the Medical Department at the top echelon of command. I will now address the specifics of management, particularly resources management, in our peacetime regionalized medical system.

The extent to which the Navy Medical Department fulfills its mission depends on the availability and management of resources: personnel, funds, facilities, and equipment. These resources provide the capability to deliver essential inpatient, outpatient, and adjunctive health care services to all authorized beneficiaries.

The start of any fiscal year resource requirements development is based upon the Defense Guidance, which outlines broad goals and establishes priorities. All Navy claimants develop their requirements from this base and submit them to the Chief of Naval Operations, who then establishes priorities and develops the Navy program within the funds available to Navy. The result is the Navy Program Objective Document, which is submitted to the Secretary of Defense for approval. Final decisions are then incorporated into budget formats, once again reviewed by the Secretary of Defense and also the Office of Management and Budget, and published as the President's budget for submission to Congress. After congressional decisions and the final appropriation bill, allocation of resources to field activities takes place.

Concurrent with the budget development, a detailed review of each activity takes place using data from the standardized Uniform Chart of Accounts and Uniform Staffing Methodologies reports. Each regional medical and dental center submits a detailed budget in July for the next fiscal year which justifies requests in terms of workload, price increases, new programs, and changes in missions. The budget reflects the requirements for all the activities in the medical region, shown separately for each major activity. They are reviewed by each program manager in the Bureau of Medicine and Surgery for content and accuracy, and recommendations are made based upon anticipated resource availability. After program managers submit their recommendations, the total program at each activity is looked at in the gross sense for executability, completeness, and conformance with the goals of the Surgeon General and established Navy policy, regulation, and law. Final adjustments are made and the funds apportioned to the activities.

After receipt of their funding, each region develops a detailed financial plan which is sent to headquarters, and monthly accounting reports are compared with the plan to insure all programs are on track.

Halfway through the year, a midyear review is held. Each region reviews its situation based upon actual experience, outlines problems that were unanticipated, and a total review is completed similar to the initial budget review. Appropriate adjustments are made within resource constraints, and a new financial plan is submitted.

Each regional commanding officer is personally responsible for execution of the financial plan as approved. Within his region he has the authority to shift funds between his subordinate activities. Minor adjustments may be made and subsequently reported by submission of a revised financial plan. Major adjustments require prior headquarters approval.

Throughout this entire process my comptroller keeps me personally informed and major decisions are made by me. To further insure that programs are executed as directed and to prevent waste and abuse, numerous other controls and reviews are conducted continually.

Within headquarters I have established an Internal Review Division which reports directly to the Comptroller of the Bureau of Medicine and Surgery. This division conducts special audits, studies, and investigations of the management of all Medical Department resources. It is specifically responsible for monitoring of audits and reviews conducted by the General Accounting Office, Defense Audit Service, Naval Audit Service, and other audit and investigative organizations, and for insuring that recommendation of these agencies are evaluated and implemented as appropriate. The Internal Review Division also examines internal management controls at all levels of the Medical Department and determines their adequacy in concept and their effectiveness in application.

The Inspector General Medical and Inspector General Dental are tasked to carry out the Naval Command Inspection Program for all medical and dental activities under the command of the Bureau of Medicine and Surgery. It is their mission to inquire into the professional, technical, and administrative operation of each field activity by means of routine command inspections and special inspections as required. The Inspectors General review the overall effectiveness of the command in performing its mission, including its use of resources, both manpower and dollars, its performance in the areas of mobilization readiness, training and personnel, support of the Navy and Marine Corps operational units it serves, and other functions of particular interest to the Navy Inspector General and the Surgeon General. Discrepancies found and suggestions for improvement made during command inspections are carefully reviewed and corrective action is monitored.

I have also formed a Council for Oversight and Review to direct our efforts to prevent fraud, waste, and abuse. The council is chaired by my Deputy, and has as members: the Inspector General Medical; the Inspector General Dental; the Comptroller; the Director of Internal Review; the Legal Advisor; the Director of Risk Management; and the Executive Assistants of the Bureau. This council directs Medical Department relationships with various audit, inspection, investigative, and accreditation bodies. The council reviews all findings and recommendations of these groups and makes recommendations for changing existing systems of control.

Another initiative recently implemented and of which I am particularly proud is our Quality Assurance/Risk Management Program. While still undergoing early growing pains, it is specifically designed to identify, study, and correct problems found in the health care delivery process. We now provide both conceptual and procedural guidance to our medical treatment facilities through a comprehensive Quality Assurance/Risk Management Manual. The manual was written to meet our unique requirements as well as the Joint Commission on Accreditation of Hospitals standards.

The establishment of a Quality Assurance/Risk Management Committee at each Navy medical treatment facility insures a direct pipeline to the commanding officer in coordinating quality assessment activities. It also is designed to centralize the review process which requires a hospital-wide, integrated, coordinated, problem-focused approach to quality assurance activities. The committee integrates the findings of numerous and traditionally fragmented committees, and must resolve—not merely discover—problems in delivering quality health care.

Each facility must evaluate the appropriateness and quality of care through a series of ongoing reviews. The Bureau of Medicine and Surgery monitors the results of these reviews as well as those of the Joint Commission on Accreditation of Hospitals and the Medical Inspector General, subsequent command corrective action reports, command incident report summaries, patient satisfaction summaries, and Consumer Council Agenda issues relative to patient concerns and dissatisfactions. This diverse material is examined with an eye toward detecting problems within the health care delivery system at the command level so that corrections can be made.

Our quality assurance program also includes a credentials review process to assure satisfactory qualifications of health care providers. Qualifications of physicians, dentists, and paramedical practitioners are evaluated by a credentials review committee before clinical privileges are granted. An annual reevaluation assures that clinical competence is maintained at a level consistent with privileges granted. Upon transfer a practitioner's credentials file is mailed to the commanding officer of his or her next duty station. This provides for exchange of information about practitioners throughout the Navy health care system. Clinical care privileges are not transferable but must be reapplied for upon reporting to each medical activity.

Using the guidelines of this program as a baseline, subordinate commands can establish goals, objectives, and priorities for assessing health care and health care delivery problems, and determine plans of action to achieve the desired results.

Since high quality, cost-effective care is a matter of primary concern to me, I have put particular emphasis on developing a sense of commitment to this program from my top managers. In my opinion, our Quality Assurance/Risk Management Program could serve as a model for the civilian community. ☐

Corpsman Brightens *Somers'* Medical Department

A patient arrives in the office of HM1 José Madrigal, sweating profusely, swaying with the ship at the mercy of the Pacific Ocean. His medical complaint—seasickness—is as old as sailing itself.

"Is it mild or severe? Severe?" Madrigal has the antidote in his hands within seconds. "You should eat something when you feel better. And by the way, stay away from Kool Aid."

The patient staggers away, clutching his stomach, just hoping to reach the scuttlebutt in time to down the pills. As he drifts off to a much-needed sleep below deck, he offers up a silent prayer to Madrigal, USS *Somers'* medicine man.

Although scenes like this are not rare on the Forest-Sherman class destroyer, Madrigal cites colds, sprained ankles, other ship-related ailments, and injuries like bruises, rope burns, and abrasions as the most common medical problems he encounters. A destroyer of *Somers'* size normally carries two corpsmen to treat the real and sometime imagined illnesses of her 321 crewmembers.

"The most serious case I had was a patient with a sciatic nerve problem. We had to transfer him to the Philippines," says Madrigal. "Anytime I can't figure out the problem or feel it is way out of my field of expertise, I suggest a transfer; we MEDEVAC all patients requiring surgery."

Madrigal's naval medical training began in 1970 at basic corpsman school, which lasted 16 weeks. He then

Madrigal stands by to render medical assistance as a shipmate is hoisted up during flight operations on USS Somers.

USS Somers *conducts routine operations in Western Pacific waters.*

HM1 Madrigal takes a throat culture.

qualified as *Somers'* "doc" by attending independent duty school at San Diego in 1973. The 36-week curriculum included training in anatomy, preventive medicine, and treatment of warfare-induced injuries.

Madrigal's first exposure to medicine came with 2 years of premed college before he joined the Navy in August 1969, but his medical career almost dead-ended right there.

"I wound up in deck division striking for gunner's mate," he recalls. "It's almost irreverent how I became a corpsman. I walked into sick bay one day when the ship was doing a field day (clean-up) and saw a corpsman leisurely washing the deck. I asked, 'Is this all you do?' He replied, 'You want it easy—become a corpsman.'"

To a young deck hand, the hospital corpsman rate looked comparatively easy, but Madrigal has since discovered that pivotal conversation to be misleading. "I've never had it easy since I became a corpsman," he says.

The statistics bear him out. Madrigal attends to the health of *Somers'* crew 24 hours a day with the aid of only one other man, HM2 Rick Lalone. Together they resemble two country doctors.

In addition to seeing an average of 20 sailors at each sick call, Madrigal must drop everything and head astern whenever "flight quarters" is sounded over the ship's intercom. There he stands by, if needed, to render medical assistance until the inborne helicopter unloads its cargo and safely departs. On busy days "doc" repeatedly performs this ritual.

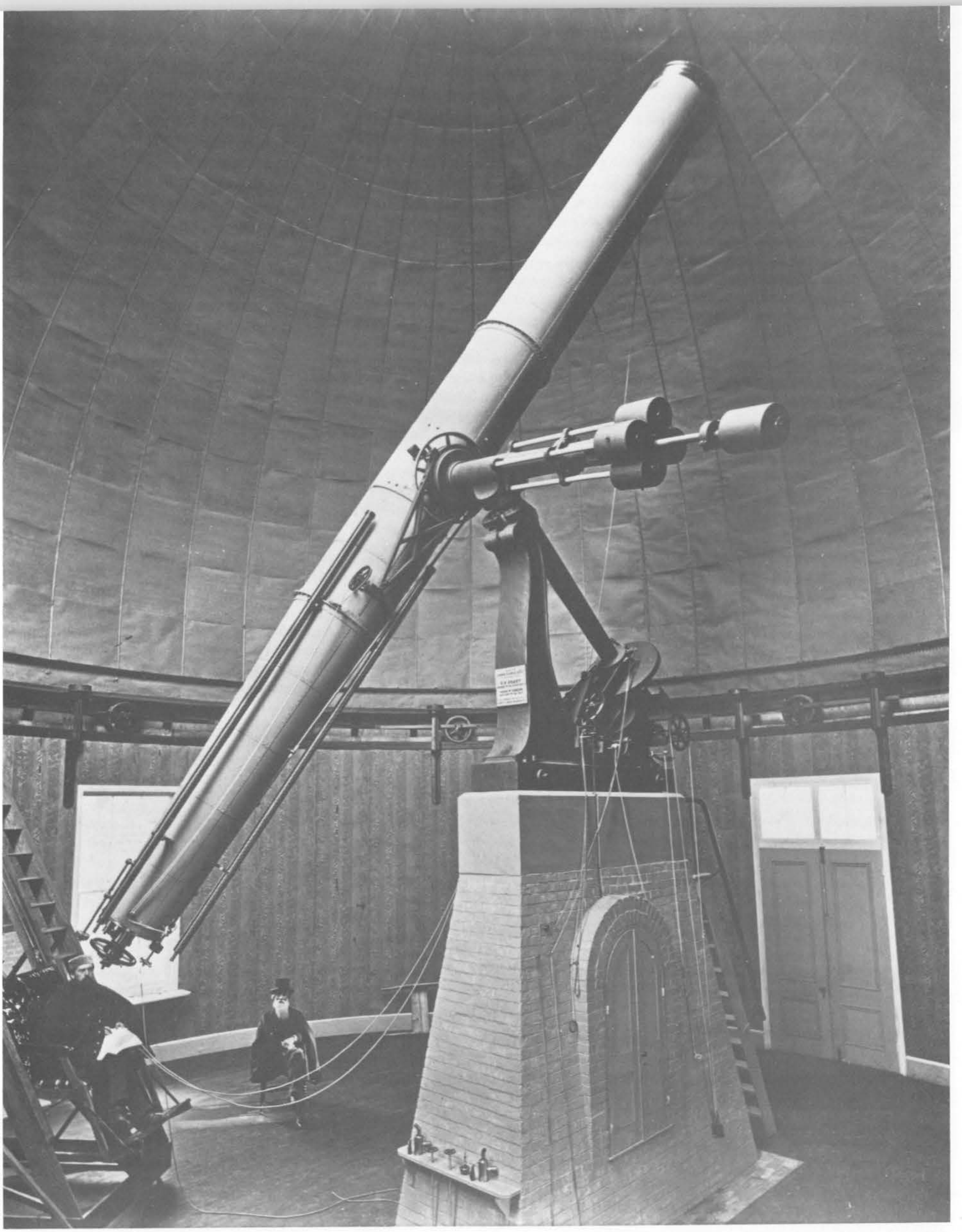
Being in demand naturally has its drawbacks. Madrigal's privacy is usually the price he pays for the respect he commands. The Texan with the mild bedside manner is fond of pointing out the chief advantage to being *Somers'* leading medical expert. "The fact that the commanding and executive officers depend on my judgment as a senior medical department representative is extremely gratifying," he says. He pauses a moment, reflectively, and chuckles. "One thing has always amused me. Whenever I give sailors shots they usually thank me."

Although *Somers'* medical department is quite modest, it reflects Madrigal's painstaking efforts to upgrade the facilities. Crowded into a 10' x 12' office are an examining table, two surgical lights, a sterilizer, a small sink, a stainless steel bookcase containing over 40 volumes of medical reference books, and a supply cabinet.

"When I reported aboard, this place looked like a morgue," says Madrigal, pointing to a caduceus that he designed on the deck. "My biggest project was to retile the office. I did it while the ship was in port, turning my living room at home into a workshop. I wouldn't let my wife clean for weeks for fear she might accidentally throw out a piece I needed. I just wanted to add a little color."

Whoever succeeds Madrigal as senior medical representative aboard *Somers* will reap the benefits of his handiwork. The last medical inspector to tour *Somers'* medical department was so impressed, he awarded it with the highest possible grade.

—Story and photos by JO2 Glenn Jochum, Seventh Fleet Public Affairs Representative, Subic Bay, R.P. □



U.S. Naval Observatory

The 26-inch Great Equatorial soon after its installation in November 1873. RADM Sands is seated to the left of the pier. Professor Newcomb is at the eyepiece.

Home of BUMED
a hilltop in foggy bottom

The Golden Age (Part II)

Part five in a continuing series

> A soft midsummer night, we stood upon the roof of the United States Observatory . . . . To our right was Georgetown; beyond Arlington Heights, and House; before us the Potomac, winding on to Alexandria; above us the fathomless heavens, the waxing moon and silent stars. Professor Harkness moved an axle; the great revolving dome turned round and parted; the great telescope was pointed to the opening, and the broad seam of sky visible between. We mounted the perch, and there were the mountains in the moon! their jagged edges, their yawning craters, yet only for a moment; for earth and moon are swift travellers. In a moment Madame Moon had outstripped our point of vision, and we had to pursue her.
>
> Just before us was the unfinished dome of another observatory, wherein will soon be placed the largest telescope in the world.*(1)*

Such was the vivid nighttime experience of Mary Clemmer Ames, one of the Observatory's many visitors. Even as she marveled over the Moon's stark topography, the large telescope she spoke of—the "Great Equatorial"—was being completed in the workshop of Alvan Clark & Sons of Cambridgeport, MA.

The Great Equatorial

The story of how the Observatory acquired the largest refracting telescope in the world begins with Simon Newcomb. In 1868 Newcomb insisted that the Observatory's 9.6-inch refractor, already 25 years old, was obsolescent; its small-diameter objective lens simply could not discern many distant celestial objects. Superintendent Sands concurred. In fact, many colleges, observatories, and even private individuals owned telescopes far superior in optics and power. "This will seem the more remarkable," wrote the Superintendent in the Observatory's Annual Report of 1868, "since the most successful living constructor of telescopes is an American—Alvan Clark, of Cambridge, Massachusetts."*(2)*

Sands had not overstated his case. Clark and his two sons were among the most skilled makers of optical instruments on any continent. They had ground objective lenses for telescopes in both Europe and America and, before the century would close, the Clarks were to manufacture objectives for the world's largest refractors five separate times.*(3)* The last—the 40-inch Yerkes—has never been surpassed.

The new telescope would not be inexpensive. The $40,000 in gold the Clarks asked was more than the Navy could afford. Sands set forth on an intensive lobbying campaign with "the proper committees in Congress through the scientific associations throughout the country, and secured the necessary sanction, and in time the appropriations therefor."*(4)*

By June 1870 powerful Capitol Hill friends of the Observatory had engineered a special appropriation through Congress calling upon their colleagues' patriotism to insure that American scientists would have the finest—and largest—telescope ever produced.

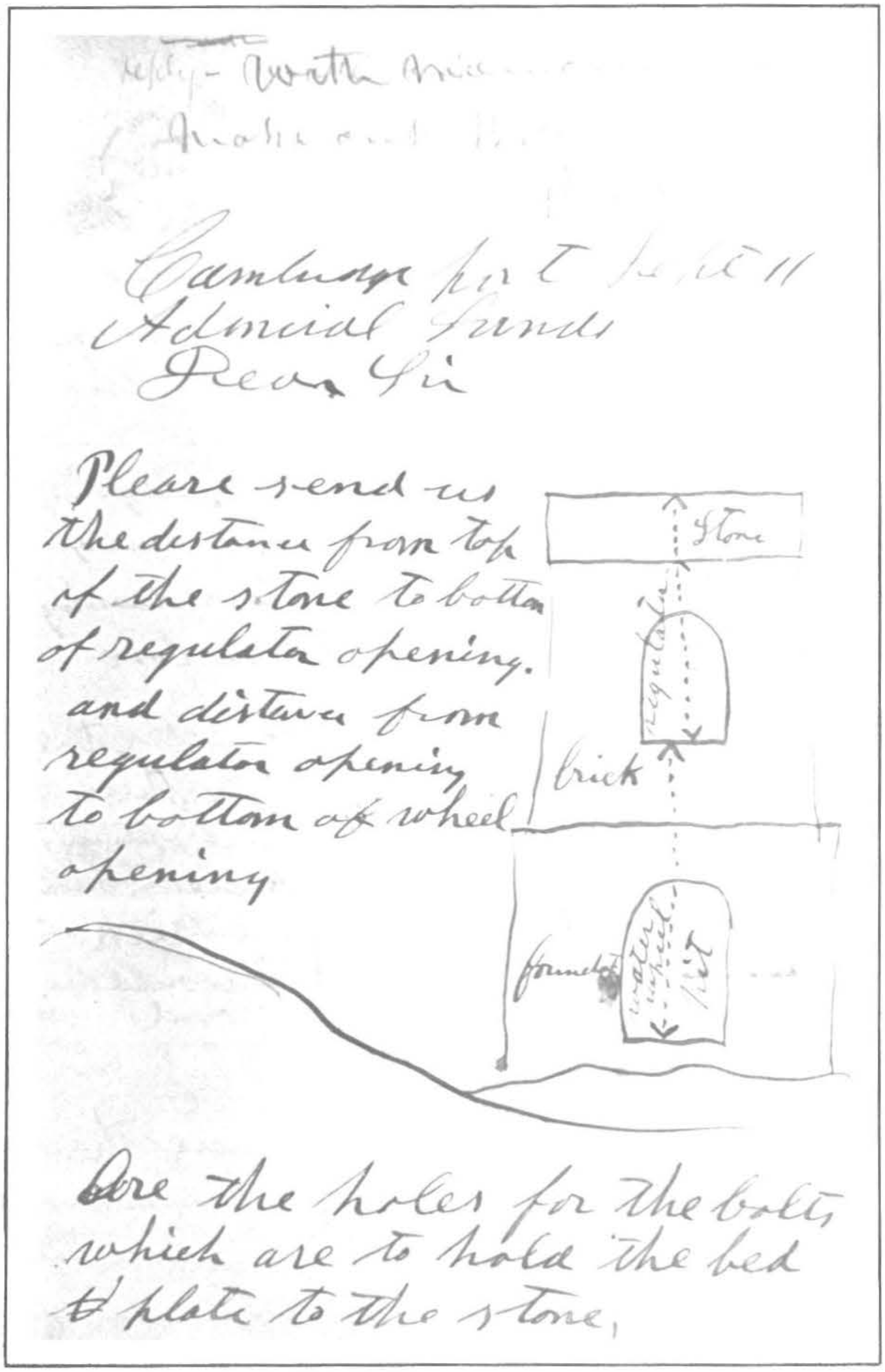
The following month a contract was drawn up with the Clarks and work commenced. The English glassmaking firm of Chance Brothers and Company began casting the rough blanks of flint and crown glass, the two components that would be mated to form the huge 26-inch diameter lens.

After the glass arrived at the Clark's Cambridgeport shop, craftsmen meticulously began grinding the lens to shape at steam-driven, horizontal turntables resembling potter's wheels. The Clarks knew the significance of the instrument they were creating. They built a new shop and a vault with "an elaborate system of telegraphic and automatic fire and burglar alarms" to protect the treasure.*(5)*

Meanwhile, designs and ideas for the telescope's tube and mounting shuttled back and forth between

Below: The Clarks ask Superintendent Sands for the dimensions of the pier that will support the Great Equatorial. Right: This round building, dome, and extension were added to the south wing to house the instrument.

U.S. Naval Observatory



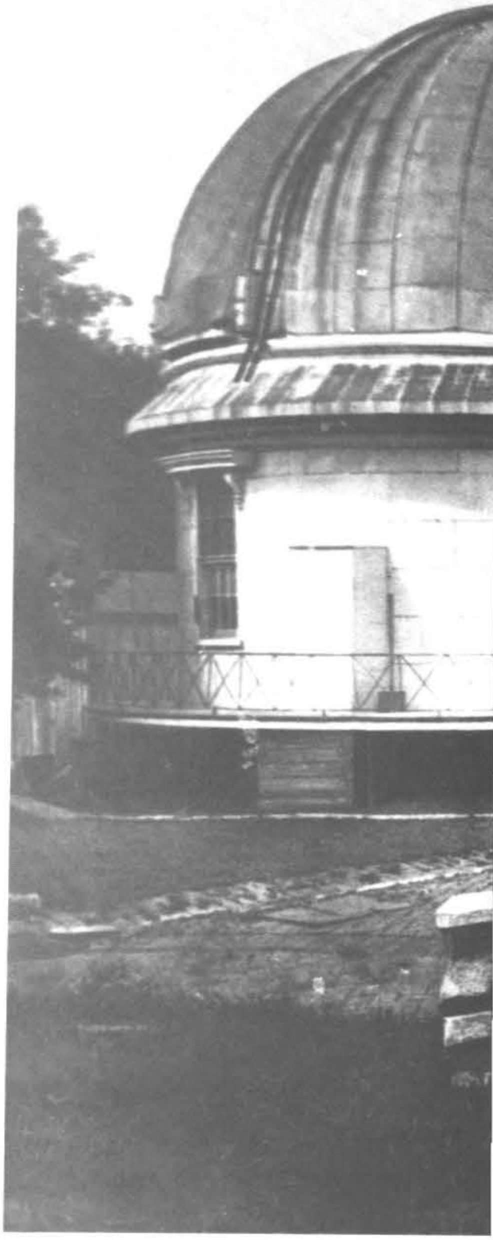
Reply – Written [illegible]
[illegible]

Cambridgeport [illegible] 11
Admiral Sands
Dear Sir

Please send us the distance from top of the stone to bottom of regulator opening. and distance from regulator opening to bottom of wheel opening

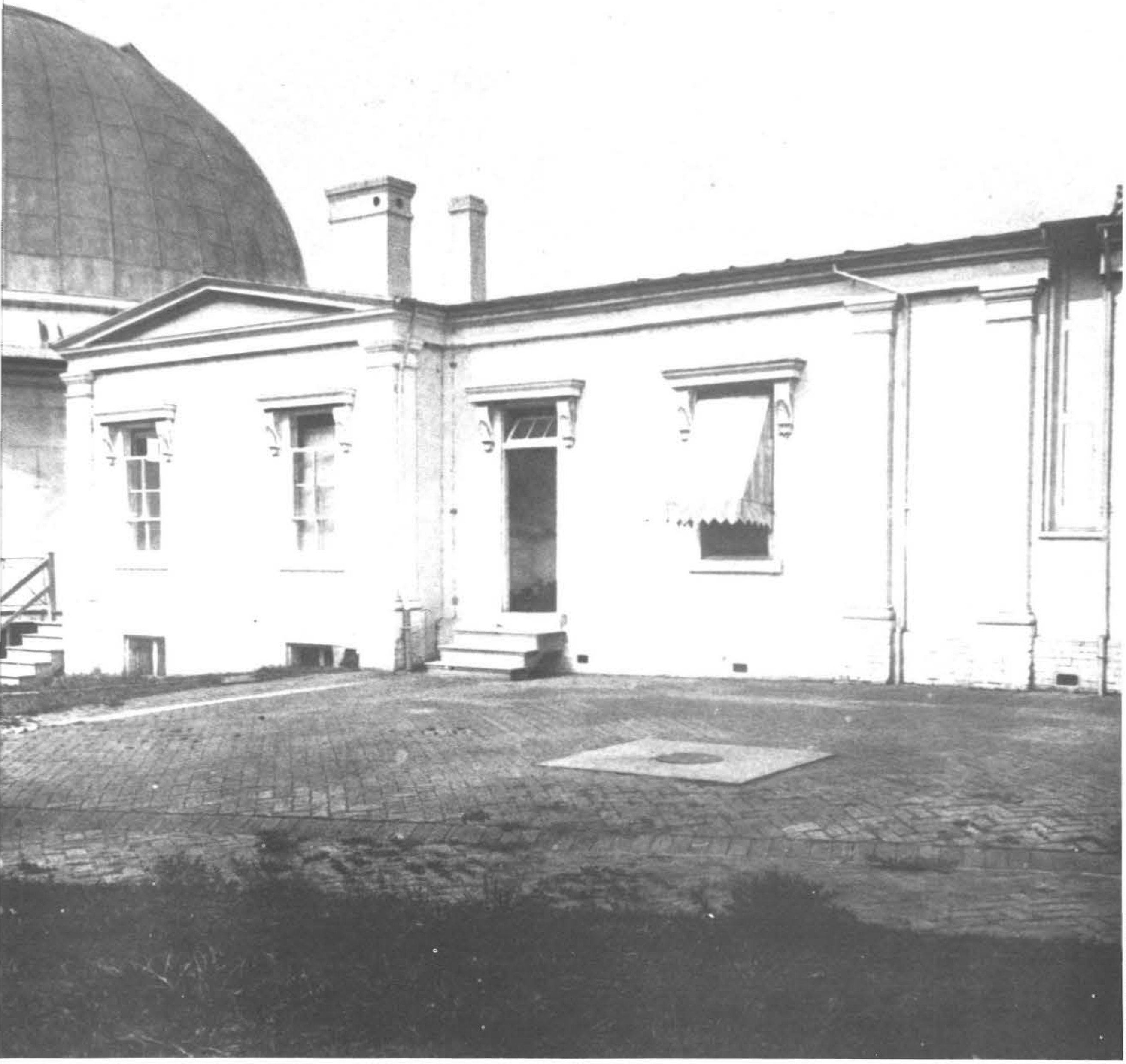
Are the holes for the bolts which are to hold the bed plate to the stone,

Stone
regulator
brick
foundat
water wheel
pit



Cambridgeport and Washington. Even as Newcomb went to Massachusetts to inspect the instrument, workmen at the Observatory were building an extension and dome off the south wing to house it.

The foundation for the new dome, made of rubble stone, was 43 feet in diameter; its walls were 2 feet thick. The dome itself 41 feet in diameter inside, had a wooden framework covered on the outside by sheets of galvanized iron and on the inside by

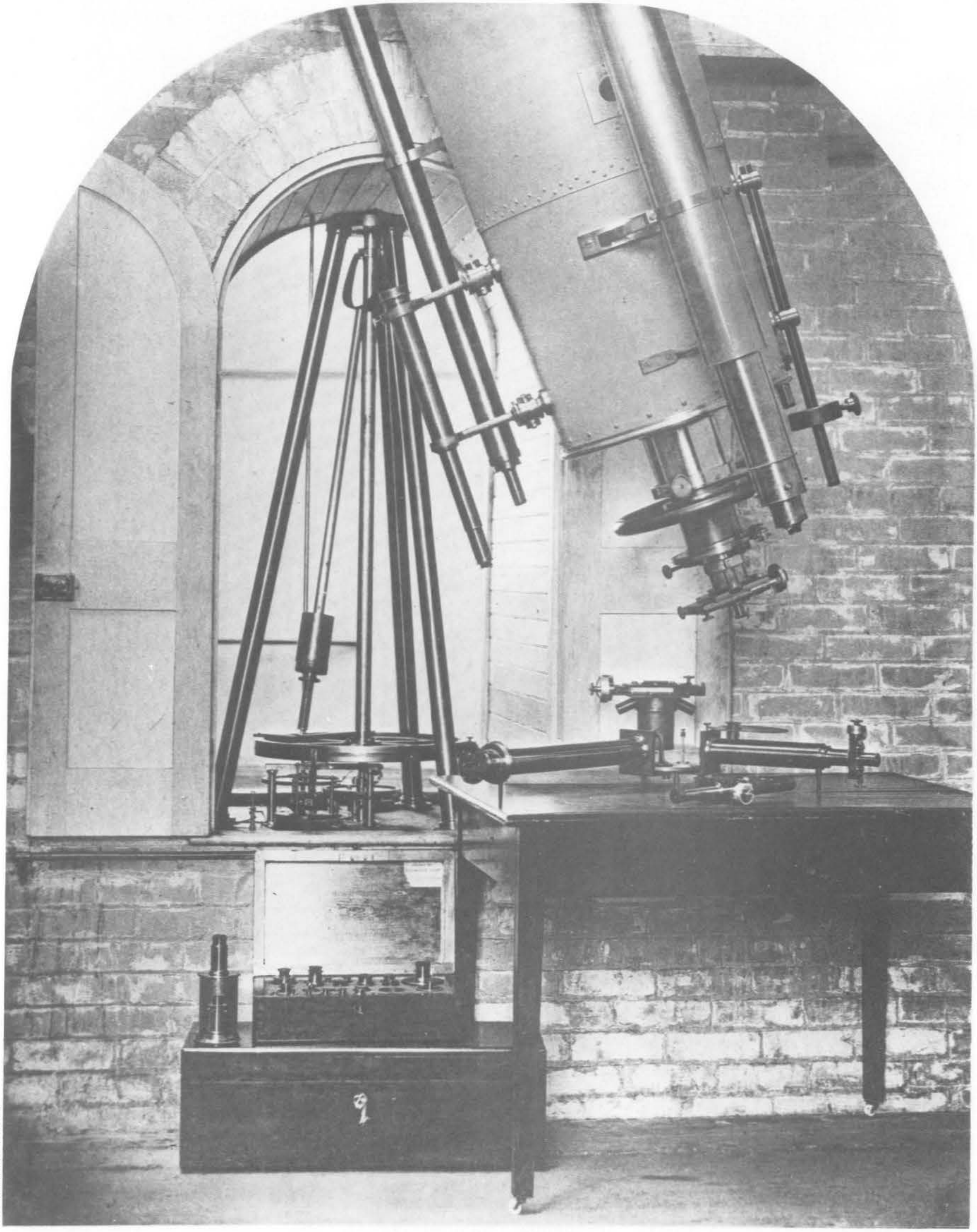


U.S. Naval Observatory

canvas soaked with several coats of soluble glass to act as a flame retardant. The whole rested and revolved upon 16 rollers moving on iron rails.(*6*) The 6.5-foot-wide observing slit was closed to the weather by a canvas shutter 43 feet long and made of surplus canvas sailcloth waterproofed with linseed oil.(*7*)

In November 1873 the Clarks delivered their masterpiece a full 2 years ahead of schedule and the Observatory marked the final assembly and mounting with a celebration attended by many distinguished civilian and military guests.

The new acquisition was appropriately dubbed the Great Equatorial. A stone and brick pier surmounted by a single sandstone block weighing about 2 tons extended 18 feet below ground level. This sturdy foundation supported the 32-foot-long telescope and its 1¼ ton, harp-shaped, cast iron mount.(*8*) The clock drive, invented by Newcomb, allowed



U.S. Naval Observatory

Details of the Great Equatorial's clock drive: The equatorial mounting and sophisticated drive enabled astronomers to track a star or planet across the sky with ease.

the telescope to track automatically the movement of a star or planet across the sky. The driving power came from a uniquely designed turbine actuated by water drawn from the city water pipes.(*9*)

Professor Newcomb and family pose outside the Observatory in the spring of 1874.

The telescope's size and ability to penetrate the heavens made it an object of wonder not only for Newcomb and his colleagues but for the general public as well. Almost immediately, letters from the curious began pouring in, most begging for just a few moments at the eyepiece. With the exception of government officials and visiting dignitaries, the Superintendent politely discouraged evening visits in order to limit interruptions to his observers.*

The Observatory's reputation, now enhanced by the Great Equatorial, grew steadily and was such that the first reigning monarch ever to visit the United States put that institution at the top of his Washington itinerary.

Centennial Expo 1876

Emperor Dom Pedro II of Brazil chose America's 100th birthday to visit the United States and take part in the Centennial Exposition being held in Philadelphia. A tall, dignified man with a keen intellect, Dom Pedro had a passion for science. He arrived in Washington on 7 May 1876 and visited Observatory Hill that very night. Simon Newcomb remembered the event:

> The carriage drove up at the appropriate hour, and its occupant was welcomed by the admiral [Davis]** at the door with courtly dignity. The visitor had no time to spend in preliminaries; he wished to look through the establishment immediately . . . .
>
> The only evidence of the imperial will came out when he reached the giant telescope. The moon, near first quarter, was then shining, but the night was more than half cloudy, and there was no hope of obtaining more than a chance glance at it through the clouds. But he wished to see the moon through the telescope. I replied that the sky was now covered, and it was very doubtful whether we should get a view of the moon. But he required that the telescope should be at once pointed at it. This was done, and at that moment a clear space appeared between the clouds. I remarked upon the fact, but he seemed to take it as a matter of course that the cloud would get out of the way when he wanted to look . . . . (*10*)

President Grant and the Emperor opened the Centennial Exposition 3 days later in Philadelphia, and His Majesty had another chance to witness America's contribution to

Smithsonian Institution

To Dom Pedro II, Emperor of Brazil, a visit to the Observatory was essential.

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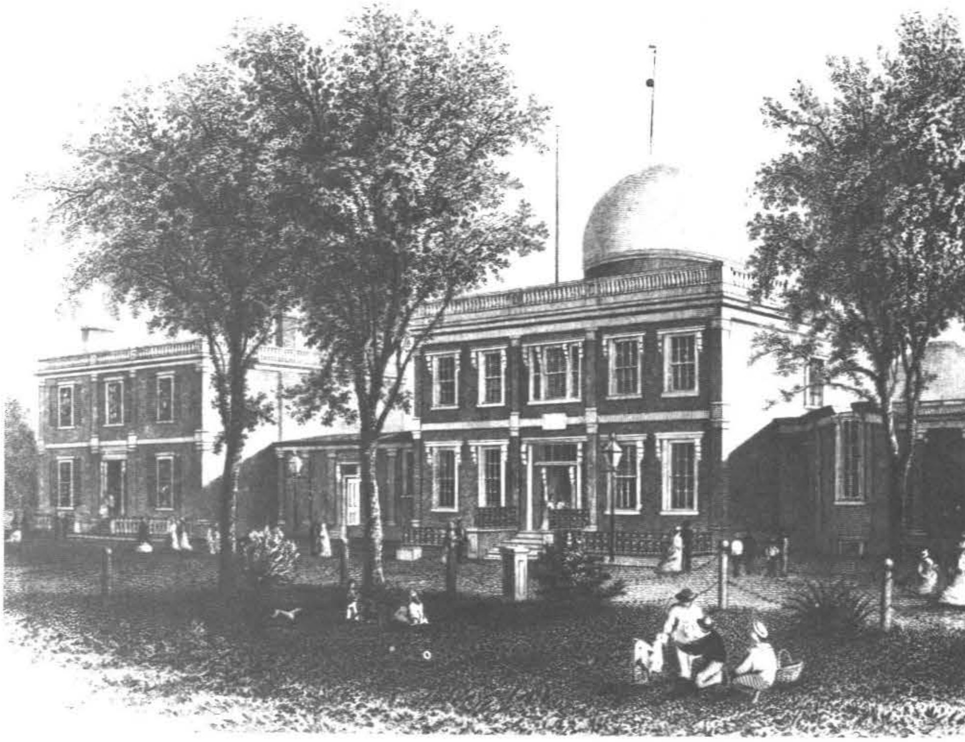
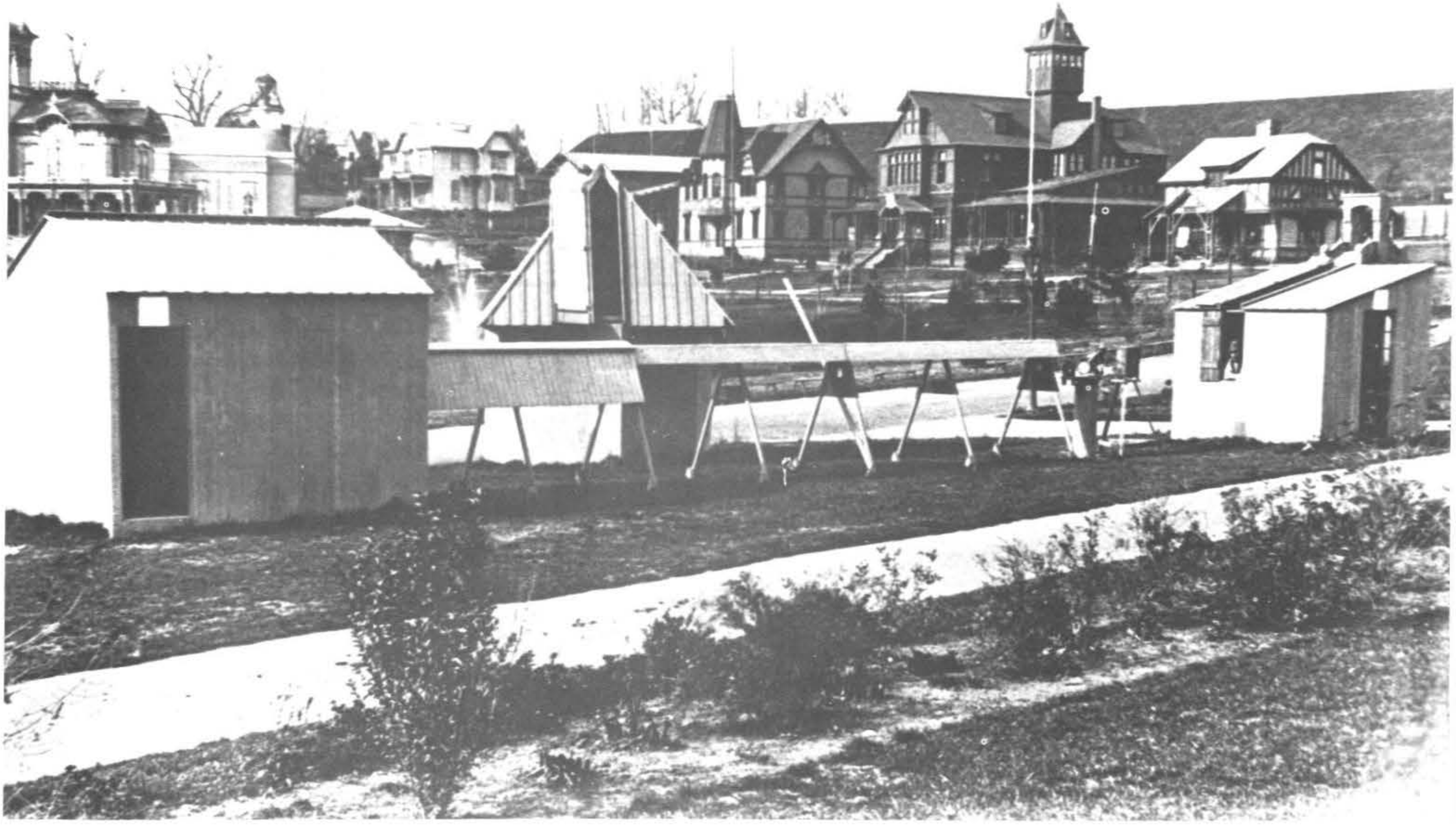
*The Observatory was open for daytime tours during regular business hours and the Superintendent often permitted local schools and other organizations to hold picnics on the well-manicured grounds.

**Sands retired in July 1874 and Davis had reassumed the Superintendency.

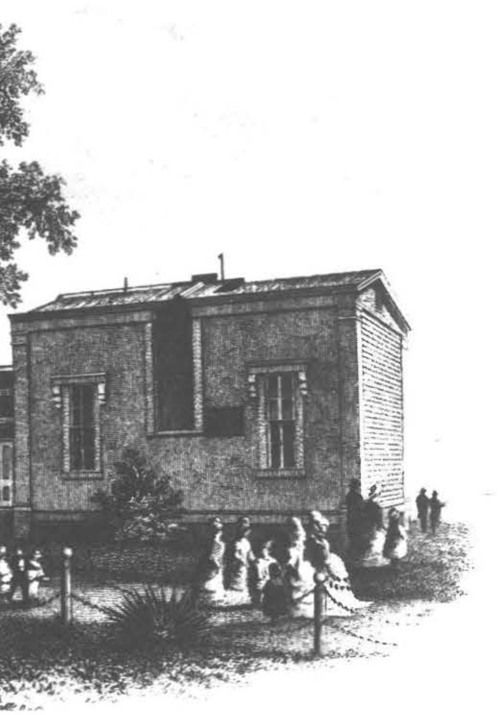
astronomy. One section of the U.S. Navy exhibit was devoted to the Observatory. Displayed in appropriate exhibit cases were copies of each volume of astronomical and meteorological observations issued since 1845, and a selection of American-made chronometers, thermometers, transits, chronographs, heliostats, clocks, and telescopes either employed at the Observatory or during the institution's field expeditions. Outside the hall, visitors could examine a portable



Right: This print of the Observatory about 1876 shows the time ball and the dome of the Great Equatorial behind the tree at right. The park-like setting was a popular picnic ground for Washington residents. Below: The Observatory's Centennial exhibit at Philadelphia included a fully equipped Transit of Venus station.



Smithsonian Institution



Transit of Venus station and instruments used in observing and recording the transit 2 years before.

If the Centennial Exposition was the young Nation's opportunity to show the world it had truly arrived, the Observatory's exhibit of over 30 years of its own accomplishments was itself a testimony to the advance of American science. There was much to be proud of.

Setting the Time Standard

Establishing precise time by means of timing the transit of stars across the local meridian had been the *raison d'etre* of the Observatory since the days it was called the Depot of Charts and Instruments. Regulating the accuracy of the Navy's chronometers depended on precise time, and after Maury installed the time ball above the central dome in 1845, Washington's citizens relied upon the canvas sphere to set their timepieces. Although this time-keeping function never changed, the Observatory's role in distributing time increased dramatically after the Civil War.

These were the days before the Nation benefited from the convenience of standard time zones. Time varied so much with location that adjacent towns could celebrate noon by a difference of many minutes to an hour. If a railroad was to run on schedule, by whose clock was that schedule to be determined?

With the introduction of modern time zones, this confusion has largely disappeared. Noon in New York City is noon in Washington, DC. Midnight in the Nation's Capital is midnight in Pittsburgh.

Yet dividing the country into standard time zones can be misleading. Time is a transient thing. Because the Earth rotates 15 degrees on its axis every hour, local time changes accordingly. True local time, therefore, is relative, varying as a function of east-west position. New York City lies about 3 degrees longitude east of Washington, DC. Local noon there occurs 12 minutes, 12 seconds earlier than it does in Washington.

What the United States clamored for in the late 1860's was a time standard to help dismiss the confusion. The Observatory began fulfilling that need. The time ball sufficed for those who could see it as it descended its mast. For those who could not, a naval officer depressing a telegraph key, or Observatory clocks wired to other distant clocks, began providing the signals electrically.

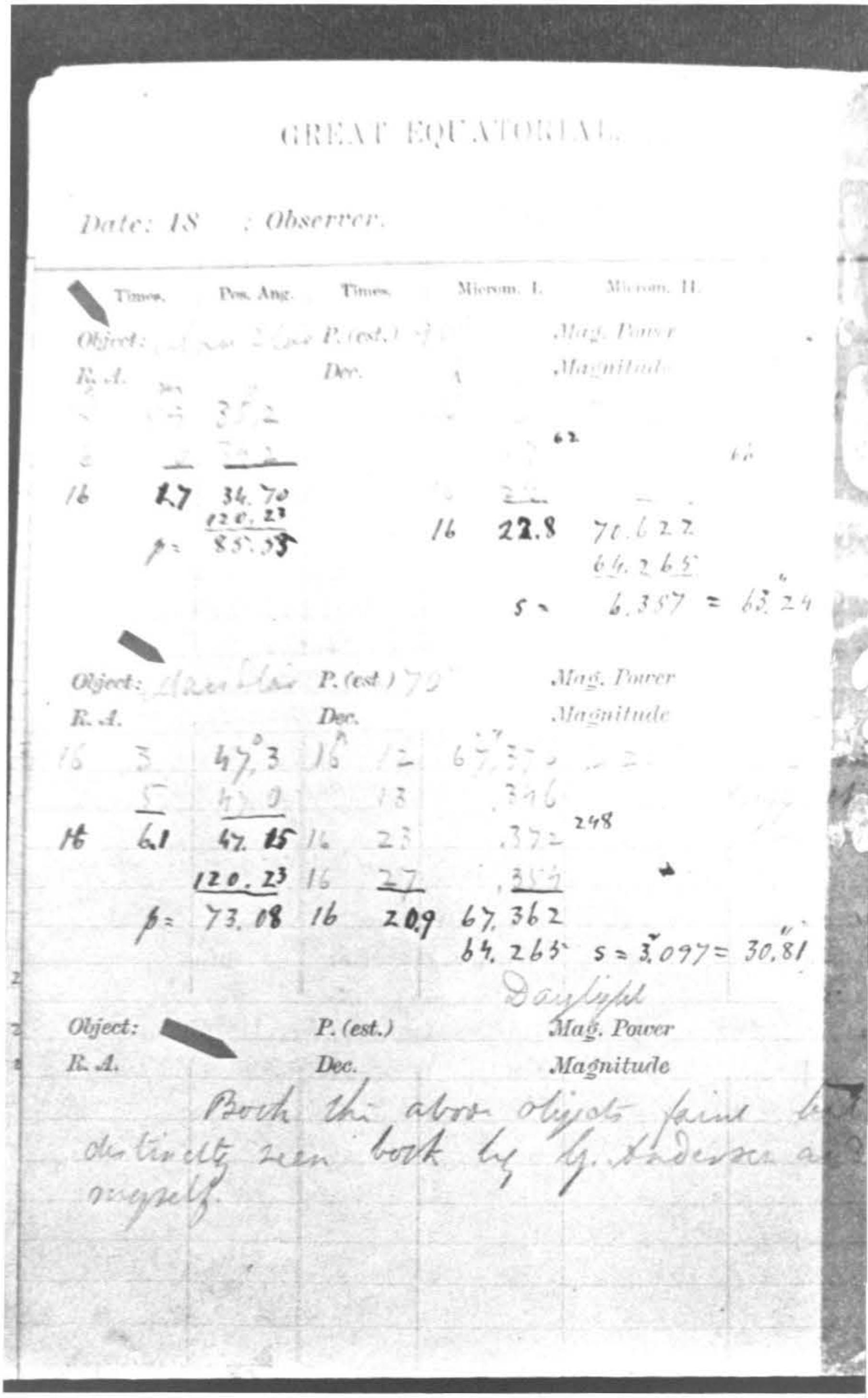
By 1869 three telegraph lines ran from the Observatory; one to the Navy Department; a second activated the Washington fire bells at 7 a.m., noon, and 6 p.m.; and a third, owned by the Western Union Telegraph Company, distributed time signals to nearly all railroads operating in the Southern States.

In 1872 the Observatory, cooperating with Western Union, agreed to telegraph Washington time to the Mutual Life Insurance Company in New York City, whereupon a time ball would be "dropped at noon from a staff erected from the top of their building at an elevation to be seen from all parts of the city and harbor, by which the time of the city and shipping can be accurately regulated."(*11*)

A year later the distribution of time signals extended from the Observatory to the main New York office of Western Union and from there to nearly every state in the Union. "The immediate object of these signals is to furnish accurate and uniform time to the railroads; and throughout the whole of the vast territory in question, there is scarcely a train whose movements are not regulated by the Observatory clocks."(*12*)

Since time is a function of the Earth's position on its axis in reference to the celestial bodies, the inverse is also true. Position is a function of time. Very early in its history, the Observatory's astronomers had determined that Washington's longitude was approximately 77 degrees west of the Prime Meridian (0 degrees) in Greenwich, England. By transmitted signals relayed from its highly accurate mean-time clock, and using the Observatory's 9.6-inch dome as a reference point, scientists could determine precisely the longitudes of other locations in the United States.

This is a simplified version of how the process worked. The Observatory and a remote location some distance west of Washington would be linked by telegraph. Observers at the remote site would determine their precise local time by taking transit observations and then setting a chronometer accordingly. By previous arrangement, a telegraph operator at the Observatory would depress a telegraph key at the precise instant of local Washington noon. An operator at the remote site would record the signal and then time the lag between Washington noon and the instant of local noon. If the difference was exactly 1 hour, the longitude of the site would be 15 degrees west of Washington. This would be 92 degrees or a longitude equal to that of Duluth, MN. In an actual instance, Ogden, UT, was determined to be 2 hours, 19 minutes, 47 and 41-hundredths of a second west of the 9.6-inch dome.



GREAT EQUATORIAL.

Date: 18 ; Observer.

Times. Pos. Ang. Times. Microm. I. Microm. II.

Object: P. (est.) *Mag. Power*

R. A. *Dec.* *Magnitude*

16 4.7 34.70

120.23

p = 85.53

16 22.8 70.622

64.265

s = 6.357 = 63.24

Object: P. (est.) 72 *Mag. Power*

R. A. *Dec.* *Magnitude*

16 3 47.3 16 12

5 47.0 13 .346

16 6.1 47.15 16 23 .372 248

120.23 16 27 .354

p = 73.08 16 20.9 67.362

64.265 s = 3.097 = 30.81

Daylight

Object: *P. (est.)* *Mag. Power*

R. A. *Dec.* *Magnitude*

Both the above objects faint but distinctly seen both by G. Anderson and myself.

Asaph Hall's Great Equatorial log for 17 and 18 Aug 1877 records his observation of the satellites of Mars.

U.S. Naval Observatory

By the mid-1870's the Observatory had established telegraphically the longitudes of Havana, Cuba, Key West, FL, Princeton, NJ, Bethlehem, PA, Detroit, MI, St. Louis, MO, Ogden, UT, Carlin and Austin, NV, and many other towns and cities in the United States. The commission charged with establishing permanent boundaries for several Western States based its judgments on longitudes measured from the Observatory's central dome.

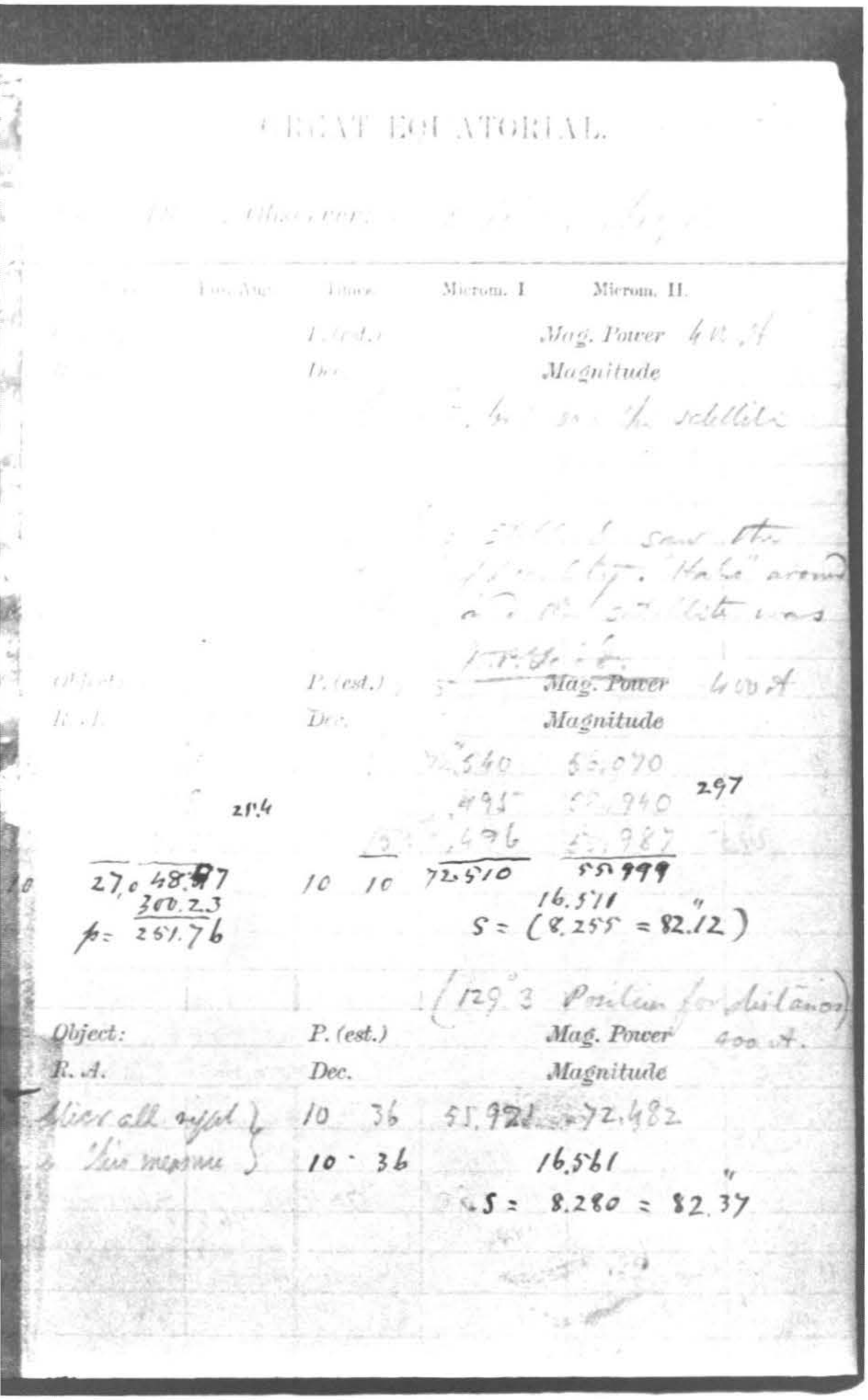
The Moons of Mars

> At the Naval Observatory, about 11 o'clock Thursday night, Prof. Hall discovered through the large telescope a faint star near the planet Mars, which, after subsequent examinations, was decided to be a satellite. Mr. Hall also detected an object which passed over to the side of the planet and which may prove to be another satellite.(*13*)

This front-page paragraph in *The Evening Star* announced what was perhaps the most dramatic event in the Observatory's history—the discovery of Deimos and Phobos, the outer and inner moons of the red planet.

In the first days of August 1877, Asaph Hall, working against the odds, methodically began looking for what had always eluded astronomers before. Night after night, he sat in the observer's chair of the Great Equatorial examining "the region close to the planet, and within the glare of light that surrounded it. This was done by sliding the eye-piece so as to keep the planet just outside the field of view, and then turning the eye-piece in order to pass completely around the planet."(*14*)

At 2:30 on the morning of the 11th he found a faint object resembling a star close by Mars, but a fog rolled in



GREAT EQUATORIAL.

Microm. I Microm. II.

Mag. Power 400 A

Magnitude

[illegible] the satellite

[illegible] I saw the [illegible] "Halo" around [illegible] the satellite was [illegible]

P. (est.) Mag. Power 400 A

Dec. Magnitude

72.540 55.070

.495 55.940 297

21.4

.496 55.987

27.0 48.87 10 10 72.510 55.999

300.23 16.511

p = 251.76 S = (8.255 = 82.12")

(129.3 Position for distance)

Object: P. (est.) Mag. Power 400 A.

R. A. Dec. Magnitude

[illegible] all [illegible] 10 36 51.921 72.482

[illegible] } 10 36 16.561

S = 8.280 = 82.37"

from the river before he could establish the object's position. On the 16th Hall again spotted the object and ascertained that it was moving with Mars and therefore could not be a star which would have appeared stationary relative to the quickly moving planet. The very next day he and his assistant, George Anderson, detected the inner moon, Phobos.(*15*)

On 18 Aug the Observatory telegraphed the news to the Clarks in Cambridgeport and asked them to confirm the sightings with the 26.25-inch telescope they were building for the University of Virginia. The Clarks had little trouble in doing so and, shortly thereafter, the Smithsonian Institution announced the discoveries to observatories in Europe and America.

U.S. Naval Observatory

Professor Asaph Hall

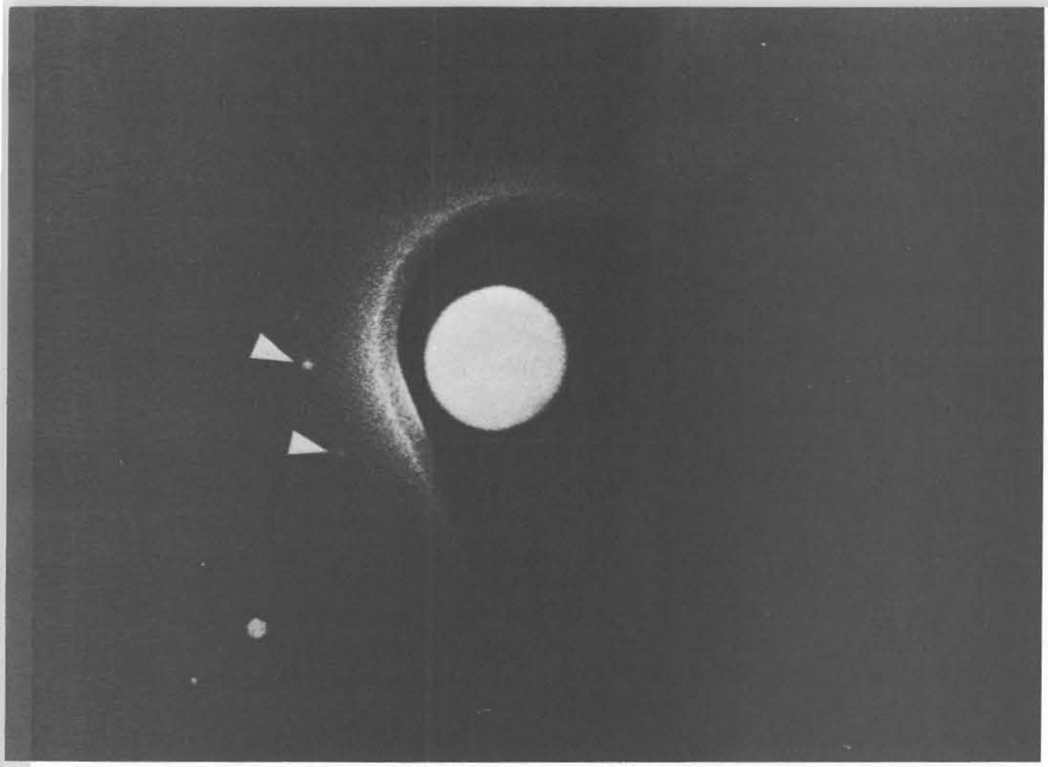


Photo by D. Pascu, U.S. Naval Observatory

Photo of the red planet and its moons taken with the 26-inch refractor on 25 Aug 1971, 94 years after Hall's discovery. The brighter satellite is Phobos. Deimos is seen here just below it. The 26-inch telescope was moved to the Naval Observatory's present site in 1893.

The news quickly spread. Once they knew how and where to look, other astronomers with far weaker telescopes began spotting Mars' satellites. Later in August Deimos was even seen through the Observatory's own 9.6-inch refractor.

With Asaph Hall's sensational discovery, the Observatory became a front-page topic for many American newspapers. Letters requesting coordinates for the satellites or announcing other sightings arrived in increasing numbers. It would be the task of Superintendent John Rodgers to answer them. The man who had done so much to bring the Observatory to its proudest day was gone. Six months before, Superintendent Charles Davis, weakened by recurring bouts of malaria brought on by the swamp at the foot of Observatory Hill, had died of heart failure in the family residence. —JKH

References

1. Ames MC: *Ten Years in Washington: Life and Scenes in the National Capital, As a Woman Sees Them,* p 511.

2. Annual Report, U.S. Naval Observatory, 10 Oct 1868.

3. Warner DG: Alvan Clark. *Dictionary of Scientific Biography,* vol 3, p 288.

4. Sands BF: *From Reefer to Rear-Admiral: Reminiscences and Journal Jottings of Nearly Half a Century of Navy Life,* p 291.

5. Newcomb S: Letter to RADM Benjamin F. Sands, 25 Dec 1871.

6. *The Instruments of the Observatory,* p 30.

7. Ibid.

8. *The Evening Star,* 19 Nov 1873.

9. *The Instruments of the Observatory, p 40.*

10. *Newcomb S: The Reminiscences of an Astronomer,* p 120.

11. *Annual Report, United States Naval Observatory,* 18 Oct 1872.

12. Ibid., 9 Oct 1873.

13. *The Evening Star,* 20 Aug 1877.

14. Hall A: *Observations and Orbits of the Satellites of Mars with Data for Ephemerides in 1879,* p 6.

15. Rhynsburger RW: A Historic Refractor's 100th Anniversary, p 5.

Bibliography

Ames MC: *Ten Years in Washington: Life and Scenes in the National Capital, As a Woman Sees Them.* Hartford, CT, Worthington & Co, 1874.

Davis CH: *Life of Charles Henry Davis Rear Admiral 1807-1877.* Boston and New York, Houghton, Mifflin & Co, 1899.

Dugan RS: Asaph Hall, in Malone D (ed): *Dictionary of American Biography.* New York, Charles Scribner's Sons, 1932, vol 8, pp 117-118.

The Evening Star, 8 May 1876.

The Evening Star, 20 Feb 1877.

The Evening Star, 20 Aug 1877.

Gingerich O: Asaph Hall, in Gillispie CC (ed): *Dictionary of Scientific Biography.* New York, Charles Scribner's Sons, 1972, vol 6, pp 48-50.

Hall A: *Observations and Orbits of the Satellites of Mars with Data for Ephemerides in 1879.* Washington, DC, Government Printing Office, 1878.

Hill GW: Memoir of Asaph Hall, in *Biographical Memoirs of the National Academy of Sciences.* Washington, DC, National Academy of Sciences, 1909, vol 6, pp 243-309.

The Instruments of the Observatory. Monograph in the collection of the U.S. Naval Observatory, 1876.

Newcomb S: *The Reminiscences of an Astronomer.* Boston, Houghton, Mifflin & Co, 1903.

Nourse JE: *Memoir of the Founding and Progress of the United States Naval Observatory.* Washington, DC, Government Printing Office, 1873.

Nourse JE: Observatories in the United States. *Harper's New Monthly Magazine* 48:526-541, March 1874.

Post R (ed): *1876: A Centennial Exposition.* Washington, DC, Smithsonian Institution Press, 1976.

Rhynsburger RW: A Historic Refractor's 100th Anniversary. *Sky and Telescope* 46(4):2-8, Oct 1973.

Sands BF: *From Reefer to Rear-Admiral: Reminiscences and Journal Jottings of Nearly Half a Century of Navy Life.* New York, Frederick A. Stokes Co, 1899.

Secretary of the Navy and Navy Officers Letters Sent, April 1865-December 1877, Record Group 78, National Archives, Scientific, Economic, and Natural Resources Branch.

U.S. Naval Observatory Annual Reports 1842-1879.

U.S. Naval Observatory Letters Received, July 1842-December 1877, Record Group 78, National Archives, Scientific, Economic, and Natural Resources Branch.

Warner DJ: Alvan Clark, in Gillispie CC (ed): *Dictionary of Scientific Biography.* New York, Charles Scribner's Sons, 1971, vol 3, p 288.

Westcott A: Charles Henry Davis, in Johnson A and Malone D (eds): *Dictionary of American Biography.* New York, Charles Scribner's Sons, 1930, vol 5, pp 106-107.

Westcott A: Benjamin Franklin Sands, in Malone D (ed): *Dictionary of American Biography.* New York, Charles Scribner's Sons, 1935, vol 16, p 341.

(To be continued in the September issue)

Previous Lamaze Training as Reciprocal Inhibitor in Systematic Desensitization

LCDR Robert A. de Csipkes

It has been well documented in numerous experimental and clinical investigations that systematic desensitization is an effective method of treatment to help individuals overcome phobic reactions to specific objects or situations.*(1,17)* The current trends in research seem to focus on exploring various innovative modifications of the standard model.*(8,11,17)*

The usual systematic desensitization paradigm employs an abbreviated version of Jacobson's progressive relaxation training.*(7)* Considerable research evidence has been compiled to show that the role of relaxation within desensitization process is an important and essential one.*(3,4,12,13,15,16,18)*

In general, these investigations have shown that more improvement was obtained by subjects who received the entire sequence of procedures, than did subjects who either received relaxation training without scene presentations or to whom scenes were presented without relaxation. The effectiveness of alternative forms of relaxation or other counter-anxiety responses also has been investigated by numerous researchers.*(2,5,6,14)* The particular counter-anxiety responses studied were induced anger, direct suggestion, oriental defense exercises, and transcendental meditation.

One very common form of relaxation is that version taught in Lamaze childbirth training.*(10)* Although Lamaze relaxation was derived primarily from the Jacobson model, it also has borrowed aspects of its technique from hypnosis and meditation. No research or clinical reports to date have been presented in the literature to evaluate its usefulness within the systematic desensitization paradigm.

The report that follows describes the deconditioning of a phobic reaction using Lamaze relaxation. This modification of the usual desensitization model was chosen due to the client's training in Lamaze childbirth 5 years earlier.

Patient History

Mrs. J., a 34-year-old white female, was referred by her physician for treatment of a fear of "sharp or pointed objects," especially when they were directed toward her eyes. She first became aware of this phobia approximately 10 years ago. It progressively worsened over the years and recently had begun to cause her to avoid performing certain daily activities such as embroidering, loading and unloading the cutlery rack in the dishwasher, drinking from a straw, and walking or driving in snowy conditions.

Initially, she had little insight into the origin of this phobic reaction but, after some discussion, linked it to the fact that her best friend was in the process of going blind. This had apparently sensitized her to her own sightedness and had caused her to develop an exaggerated fear of traumatic injury to her own eyes.

The interview failed to reveal evidence of additional psychological difficulty or dysfunction. In other words, this phobia was judged to be an isolated problem in an otherwise well-adjusted woman. Mrs. J. is married and the mother of a 5-year-old daughter. As mentioned earlier, she

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TABLE 1. Hierarchy and Session in Which Desensitization was Accomplished

Item	Session Number
(1) A needle pointing out of a pin cushion	2
(2) A needle pointed at her while embroidering	2
(3) A pencil waved at her from across a room	3
(4) Sitting near her daughter while she is writing and a pencil is brought close to her face	4
(5) A straw in a glass which is pointed at her face	5
(6) The cutlery rack in the dishwasher	6
(7) Walking in driving snow	7
(8) Operating her car in driving snow	8

TABLE 2. In Vivo Hierarchy and Session in Which Desensitization was Accomplished

Item	Session Number
(1) A pencil being pointed toward her	11
(2) A pincushion being near her	13
(3) A straw in a glass pointed toward her eyes	15

had received training in the Lamaze method of natural childbirth and used this technique during the delivery of her daughter.

Treatment

Following the initial interview the diagnosis of a phobic reaction to pointed and sharp objects was established. Since systematic desensitization has been shown to be extremely effective in the treatment of phobias, this method was chosen.

During the second session the actual treatment procedure was described in detail to Mrs. J. It was during this session that she revealed her past experience with the Lamaze technique and expressed her confidence that she could elicit a significant relaxation response using the method. It was decided to employ this technique instead of the usual progressive relaxation training in order to avoid a duplication of effort and to accelerate the treatment process. During this same session, a hierarchy of anxiety-eliciting objects or situations was discussed and formulated (Table 1)

The third meeting was the first actual desensitization session. The procedure used was similar to the conventional systematic desensitization paradigm described by Krumboltz and Thoresen.(*9*) The sole exception or modification to the usual model involved Mrs. J. inducing the relaxation response in the manner taught by Lamaze training. She would elicit the state of relaxation by visually focusing on an object in the room, as is common practice in hypnotic induction. Upon becoming relaxed she would signal with her index finger and the presentation of scenes for visualization would then commence.

The deconditioning of the items in Table 1 progressed at a steady pace with approximately one scene being desensitized per session. After eight sessions the entire hierarchy had been successfully deconditioned. In addition, Mrs. J. reported a concurrent desensitizing effect in her real-life encounters with these objects.

At this point Mrs. J. was asked to assess or identify those objects which continued to cause her difficulty or were still capable of eliciting an anxiety response. Table 2 lists those objects which were identified. We decided to desensitize these objects using an in vivo procedure. To accomplish this we first established the distance at which the particular object would elicit a noticeable level of anxiety. It was then at that distance that the in vivo desensitization commenced.

After Mrs. J. became relaxed, we instructed her to look at the object and to signal should her state of relaxation be disturbed. Upon signaling with her index finger she would be instructed to look away and to once more relax herself. Once the object was no longer capable of eliciting anxiety at that distance, the object would then be moved closer.

The criteria for successful desensitization was the ability to observe the object for 1 minute on three consecutive presentations without experiencing anxiety. The object was considered completely desensitized once criteria was reached at the distance desired by Mrs. J. These distances were established with consideration given to future safety or realistic caution. As was true for the earlier visualization stage of treatment, the in vivo desensitization progressed at a steady pace with seven sessions being required to reach the criteria of success on three objects. As each object was deconditioned in the treatment sessions, Mrs. J. would consistently report the absence of evoked anxiety to that object in the real environment.

Treatment was concluded with successful desensitization of the final in vivo item. Followup interviews were conducted at approximately 2 and 6 months following the completion of treatment. These interviews revealed a continued absence of anxiety in response to the previously phobic objects. In addition, no new symptoms had appeared and Mrs. J. reported good overall adjustment.

Discussion

Using the Lamaze style of relaxation within the systematic desensitization model does not apparently diminish its effectiveness. This patient study reveals the successful desensitization of a phobic reaction using this modified technique. Its importance lies in the potential savings, in both time and effort, when treating patients who have had past experience with the Lamaze technique of natural childbirth. It should be further emphasized that in this case the Lamaze relaxation training took place more than 5 years earlier, and that no new or additional training in relaxation was necessary. Since the Lamaze technique is a very popular and commonly used method in childbirth today, the number of potential cases in which this modification of the standard desensitization paradigm may be used beneficially is considerable. Again, the study indicates that past training in Lamaze relaxation is an adequate substitute for Jacobson's progressive muscle relaxation and does not adversely influence the effectiveness of treatment.

References

1. Bandura A: *Principles of Behavior Modification.* New York, Holt Rinehart & Winston Inc, 1969.
2. Boudriau L: Transcendental meditation and yoga as reciprocal inhibitors. *J Behav Ther Exp Psychiatry* 3:97, 1972.
3. Davison GC: Systematic desensitization as a counter-conditioning process. *J Abnorm Psychol* 73:91-99, 1968.
4. Farmer RG, Wright JMC: Muscular reactivity and systematic desensitization. *Behav Ther* 2:1-9, 1971.
5. Gershman L, Stedman J: Oriental defense exercises as reciprocal inhibitors of anxiety. *J Behav Ther Exp Psychiatry* 2:117, 1971.
6. Goldstein A, Serber M, Piaget J: Induced anger as a reciprocal inhibitor of fear. *J Behav Ther Exp Psychiatry* 1:67, 1970.
7. Jacobson E: *Progressive Relaxation.* Chicago, University of Chicago Press, 1938.
8. Karoly P: Multicomponent behavioral treatment of fear of flying: A case report. *Behav Ther* 5:265-270, 1974.
9. Krumboltz JD, Thoresen CE: *Behavioral Counseling: Cases and Techniques.* New York, Holt Rinehart & Winston, 1969.
10. Lawson P, Simon F: *Childbirth Preparation Manual.* Livermore, CA, Lawson/Simon, 1975.
11. Paul GL: *Insight vs Desensitization in Psychotherapy: An Experiment in Anxiety Reduction.* Stanford, Stanford University Press, 1966.
12. Paul GL: Two-year follow-up of systematic desensitization in therapy groups. *J Abnorm Psychol* 73:119, 1968.
13. Rachman S: Studies in desensitization: The separate effects of relaxation and desensitization. *Behav Res Ther* 3:245-251, 1965.
14. Rubin M: Verbally suggested responses as reciprocal inhibition of anxiety. *J Behav Ther Exp Psychiatry* 3:273, 1972.
15. Van Egeren LF: Psychophysiology of systematic desensitization: The habituation model. *J Behav Ther Exp Psychiatry* 1:249-256, 1970.
16. Van Egeren LF, Feather BW, Hein PL: Desensitization of phobias: Some psychophysiological propositions. *Psychophysiology* 8:213-223, 1971.
17. Wolpe J: *The Practice of Behavior Therapy.* New York, Pergamon Press, 1973.
18. Wolpe J, Flood J: The effect of relaxation on the galvanic skin response to repeated phobic stimuli in ascending order. *J Behav Ther Exp Psychiatry* 1:195-206, 1970. ☐

Influenza Vaccination

LT Ben Hasty, MC, USNR

An annual flu shot is a required part of an active duty member's vaccination series.(*1*) Enthusiasm toward flu vaccination is sorely lacking in the majority of officers and enlisted personnel. It has a reputation of "the cure being worse than the disease."

Being assigned to a Marine Corps air station (MCAS) and acting as senior medical officer, the author was tasked with the delivery of flu shots to the entire air station of approximately 2,600 members.

The following is a discussion of the method of delivery and the incidence of adverse reactions related to the vaccine.

Method

At an MCAS there are numerous individual commands stationed together on one base. In order to lessen disruption of essential squadron functions, officials decided that a vaccination team would go directly to squadron areas to deliver this immunization. For the sake of the efficiency a pneumatic gun was used to administer the vaccine.

A map of the air station identified seven locations scattered around the base which would be used as vaccination sites. Each squadron was to muster at a particular time and location over a 2-day period. It was estimated that 200 persons per hour could be vaccinated.

All squadron personnel were required to attend this muster, unless their medical record showed recent influenza vaccination. Personnel on the flight schedule that day or the subsequent day also were excused as this vaccination requires a "grounding" of 12 hours (24 hours if not detrimental to mission).(*2*)

The vaccine was trivalent types A and B, whole virion, (Fluzone by Connaught) containing 45 micrograms of hemagglutinin per 0.5 cc, with 15 micrograms each of A/Brazil/78 (H1N1), A/Bangkok/79 (H3N2), and B/Singapore/79. Equipment included pneumatic gun, 2 x 2's, acetone, rubber stamps to update the shot cards, and those medicines needed to treat possible reactions, i.e., epinephrine, benadryl, ammonia inhalants, oxygen, and ambu bag.

The team included the author, three corpsmen from the MCAS clinic, and the corpsman trained to use the pneumatic gun. Incoming patients were asked specifically if they have any allergy to chicken, eggs, or feathers, and were told the possible side effects of the vaccine. Names were checked off against current squadron alpha rosters, then 0.5 cc of vaccine was administered, followed by updating the patients yellow vaccination cards.

Results

Of approximately 2,600 base personnel, about 800 were deployed during this period supporting field operations in another country. An indeterminate number were on leave or flying, bringing the total number to be vaccinated to about 1,700. The team vaccinated 750 the first day and 500 the second, a total of 1,250. This excludes those on the flight schedule as well as some key personnel unable to be relieved to attend the muster, i.e., air traffic controllers, crash crew, etc. Also, as the shots were given during the day, some personnel who work the night shift were missed. Nevertheless, about 80 percent of the personnel were vaccinated.

There were no immediate allergic reactions. One case of near fainting occurred a few seconds after vaccination, but the patient responded well to conservative measures. The clinic noted only six cases within 48 hours of vaccination with complaints of flu symptoms, i.e., chills, fever, myalgia, and malaise. Generally, during the subsequent week there was no increase in viral syndromes over normal. One patient with a history of rashes of undetermined etiology and who also had recently been placed on antabuse, presented to the clinic 5 days after vaccination with an idiopathic, pruritic, macular rash. Antabuse was temporarily discontinued. No neurologic sequelae have been noted in this population in the 3 months since vaccination.

Comments

This effort to vaccinate an MCAS active duty population was to comply with the BUMED instruction concerning annual flu shots. The intent was to perform the task with minimal disruption of squadron function and without compromising the quality of medical care delivered. The method outlined accomplished both. Cooperation at the squadron level was superb. As was stated earlier, the rank and file are not enthusiastic about this vaccination due to its reputation. Because the Medical Department made the effort to come to the working areas, and because there was

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close cooperation between the squadrons and medical to coordinate the affair, a spirit of acceptance prevailed. Also, the 80 percent vaccination rate would not have been achieved had the personnel been asked to leave their duty areas and report to sick bay.

Furthermore, this vaccine's bad reputation seems unwarranted. In addition to local erythema lasting 1 or 2 days in up to one-third of those vaccinated, there are three adverse reactions generally recognized with this vaccine:

- Guillain-Barré syndrome occurring 7 to 12 weeks after vaccination;
- An immediate allergic reaction presumably due to residual egg proteins; and
- a syndrome of fever, malaise, myalgia, which begins within 12 hours of vaccination and resolves in 1 or 2 days.

Of these, none of the first or second type were noted, and only six cases (0.5 percent) of the third were seen, at least of a severity sufficient to bring them to sick bay.

The safety of this vaccine has been again demonstrated, while the efficacy (i.e., prevention/reduction of viral syndromes) is beyond the scope of this article. It has been shown previously that flu shots are effective in inducing increased hemagglutinin titers in active duty Marines, but "no attempt was made to equate the development of significant antibody titers with protection from infection or disease."(*3*)

It has been said that influenza A and B are responsible for only a small portion of all respiratory disease, but both strains are unique in causing periodic widespread outbreaks, with serious illness or death occurring primarily in the chronically ill or in persons over 65.(*4*) To determine the actual effectiveness in disease prevention and morbidity reduction vis-a-vis what is presently underway in the civilian community regarding the use of pneumococcal vaccines, random studies followed by a cost analysis survey would have to be done.(*5*)

In summary, the squadrons uniformly appreciated the efforts made to bring the medical team to them. The project also served as a useful reminder that the main function of the Medical Corps is to support active duty units whenever and wherever possible. Lastly, the team worked well as a unit, and actually delivered more than 200 vaccinations per hour.

Since the flu vaccination project, the same technique has been used for other vaccinations (cholera, plague, etc.) on a squadron by squadron basis. It continues to be an effective and well accepted method of providing essential health care in a unique situation.

References

1. *BUMED Instruction 6230.1H*, p 9, par 5a.

2. *BUMED Instruction 6230.1H*, p 3, par 8b.

3. *Milit Med* 145:93-95, Feb 1980.

4. *Morb Mort Wkly Rep* 30:279, 19 June 1981.

5. *JAMA* 246:1299, 1981. ☐

EDITOR SEEKS ARTICLES AND PHOTOS

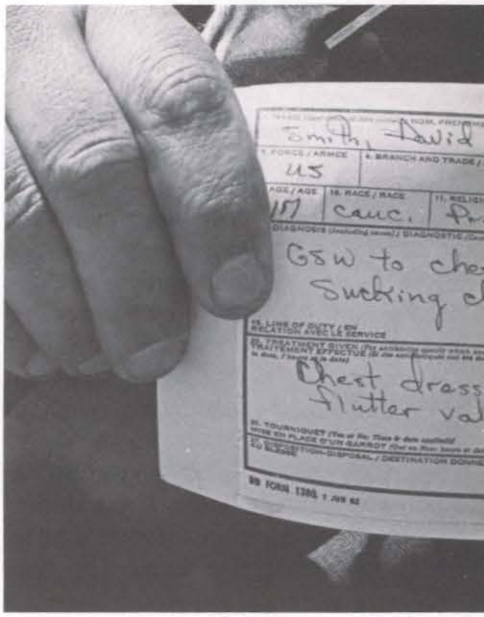
U.S. Navy Medicine has always encouraged our readers to submit articles in the areas of their expertise or experience. We especially are looking for good black-and-white glossy photos to go along with those submissions (8" x 10"s are best but 5" x 7"s are also acceptable). If you have a manuscript and also happen to be good with a camera, we'd like to hear from you.

Operational Readiness Course Trains Nurses

Emily B. Rudin

Photos by the Editor

LCDR Elizabeth Hart, HSETC's program coordinator for operational readiness, secures a dressing to protect a "wound." "These lectures and exercises are aimed at broadening the participants' attitudes," she explained. "The field is a very different world from the hospital."



Imagine, for one uneasy moment, that a military disaster has erupted overseas and the United States is involved. As a Navy nurse on a hospital team, you have been flown to a country near the site to set up a field hospital. You have just received word that a Navy ship 60 nautical miles away was hit. Wounded sailors are swiftly being evacuated to your location and will arrive within minutes.

In a life-and-death situation where seconds count, how will you prepare for the surge of victims? How will you quickly and accurately determine the types and degree of trauma? What specific techniques will you use to care for these casualties of modern warfare?

To prepare for this sort of scenario, 40 Navy Nurse Corps officers from across the United States traveled to the Marine Corps base in Quantico, VA. There, as participants in an operational readiness course that

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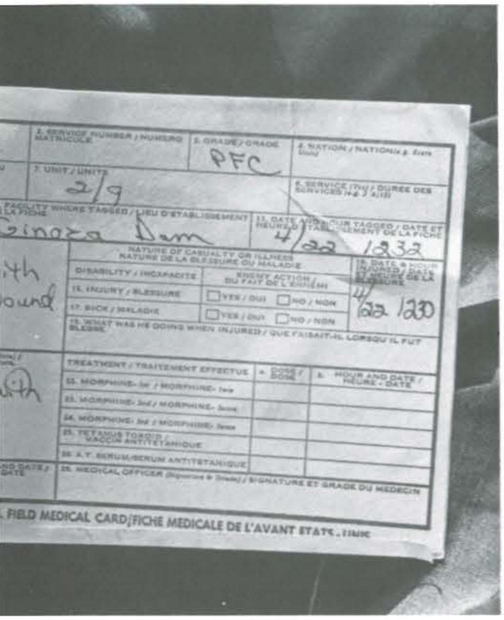

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NATURE OF CASUALTY OR ILLNESS / NATURE DE LA BLESSURE OU MALADIE

DISABILITY / INCAPACITE

ENEMY ACTION / DU FAIT DE L'ENNEMI

16. INJURY / BLESSURE ☐ YES / OUI ☐ NO / NON

17. SICK / MALADIE ☐ YES / OUI ☐ NO / NON

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WHAT WAS HE DOING WHEN INJURED / QUE FAISAIT-IL LORSQU'IL FUT BLESSE

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MORPHINE- 3rd / MORPHINE- 3eme

TETANUS TOXOID / VACCIN ANTITETANIQUE

A.T. SERUM/SERUM ANTITETANIQUE

MEDICAL OFFICER (Signature & Grade) / SIGNATURE ET GRADE DU MEDECIN

FIELD MEDICAL CARD/FICHE MEDICALE DE L'AVANT ETATS-UNIS

Awaiting evacuation from the field after triage, a "patient" displays his medical card. "Through this course," according to RADM Shea, "nurses can gain a 'healthy respect' for troops that are deployed to the field."

featured simulated contingency conditions, they learned firsthand what it is like to practice in the field.

Sponsored by the Naval Health Sciences Education and Training Command (HSETC) from 19-23 April 1982, the program was the Navy's first totally field-oriented nursing course. To enhance the participants' skills, medical experts discussed a wide range of topics including cold and heat stress, casualty management, triage and surgical priorities, and combat injuries. Exercises featured night triage and simulated attack.

"The Surgeon General of the Navy is totally committed to operational readiness for the Navy and Marine Corps," explained RADM Frances T. Shea, Director of the Nurse Corps. "To support him in this goal, it is very important that all health care professionals know how to perform under adverse conditions. As far as the Nurse Corps is concerned, the time to learn the necessary skills is not during those conditions, but prior to them."

Nurse Corps training officials plan to model future operational readiness courses on this pilot program. ☐

Participants gained experience in helicopter evacuation. They also slept in tents and wore camouflage uniforms as part of their training, designed to give them techniques and concepts for performance in the field as well as an idea of what their patients would experience.

When the Nurse Corps participants returned to their home commands, one of their primary responsibilities would be to teach hospital corpsmen and other nurses about combat care—adapting basic skills from a clinical setting to an improvised one.

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